

The Profit and Loss Account and the DuPont Analysis – Study Models of Performance in Companies Listed on BSE

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Abstract: This paper presents aspects of the study of financial performance determined for 64 companies listed on BSE on the basis of the profit or loss Account and on the DuPont model. The aim is to provide a framework for studying the performance by two complementary methods: the calculation of rates of return and the DuPont analysis, achieving also a case study sample of companies selected. In the introduction of the study there are presented items relating to the objective, research methodology and the innovations, while literature is being reviewed. In the case study we presented the method for determining the rate of financial, economic and commercial return, then, by applying the DuPont analysis, companies were ranked and the Pearson's correlation coefficient was determined for the study of factors that influence the profitability of the DuPont model. Deepening the study of factors that influence the financial performance of the model by calculating the Pearson correlation coefficient demonstrates, for the companies analyzed, a strong link between company size and profitability on the one hand and between equity finance and profitability, on the other hand, one thing positive and at the same time incentive for investors.

Keywords: profit and loss account, performance, financial return, economic return, return on sale, Bucharest Stock Exchange, the DuPont model.

1. Introduction

This paper addresses general and practical aspects on performance analysis for 64 companies listed on the Bucharest Stock Exchange, of Top 100 by market capitalization, based on data taken from the annual financial statements published on the Bucharest Stock Exchange website. One of the goals of this study is to rank the companies analyzed by the DuPont model, following the calculation of the model rates and the other rates of return in order to identify and interpret their position nationally.

The research methodology consisted of documentation, data collection, observation and descriptive data analysis. Our research is also impressive both quantitatively and qualitatively.

In the content of the paper, bibliographic documentation is also mentioned, by which various viewpoints of Romanian and foreign authors about the studied concepts were presented. Practical documentation for the 64 company subject to this study and listed on the Bucharest Stock Exchange is presented as well. Data collection was made from public sources, the data being extracted from the financial statements of companies.

The references listed at the end of the paper made it possible to quantify and broaden the knowledge about the studied phenomenon.

Without claiming completeness in our approach based on real financial data from the sample of 64 companies, we believe that the present work brings into the specialized literature new elements by the integrated way of studying the performance of both the study of rates of return and the DuPont analysis.

2. Profit and loss account - the expression of companies' performance

Profit and loss account is "an accounting synthesis document through which the operating, financial and extraordinary flows are regrouped. This explains how the financial year result was established, in different stages, allowing some conclusions related to the economic performance of the activity conducted by a company in a given reporting period." [4]

Dorel Mateş, Dumitru Mateş and Dumitru Coteleş consider that the profit and loss account "shows, in a systematic form, the results of each financial year or reporting periods, in terms of expenditure and revenue reports, providing a summary of the result structure of the operating, financial and extraordinary activity." [9]

"The results achieved by company, as a result of its efforts, are generally described, summarized and presented at the end of the year through the profit and loss account or result account. This synthetically highlights the results for the period through balance reports between expenditure and revenue." [14]

Profit and loss account groups the enterprise's income and expenses by activity, namely [3]:

- operating activity, which is the dominant activity aimed at achieving the company's profit in the industrial, investment, commercial and / or service provision sector;
- financial activity, regarding the ownership interests in other companies and other investment activities. the operation and the financial activity form the current activity of an enterprise;
- extraordinary activity regarding those extraordinary events affecting the normal activity of the enterprise.

The data of this study were processed using the annual financial statements expressed in lei for 2011, published on the website of the Bucharest Stock Exchange. The main supplier of the data that made this study possible was the profit and loss account as it is a document that shows the performance of a company.

3. Companies' financial performance and return condition

In the literature there is no clear distinction between return and profitability rates in general.

The concept of performance is not viewed in a unified vision, so definitions are frequently either too general or too specific. Further, we are presenting some of them.

Iulia Jianu considers that "performance is a state of enterprise competitiveness which ensures sustainable presence on the market. Performance is an indicator, with a potential of future outcomes, which occurs as a result of achieving strategic objectives." [13]

"The evaluation of firm performance is very important for a firm since it is associated with the determination of corporate strategy, operating performance, and managerial compensation." [7]

Economic and financial performance is defined by Gheorghe Bistriceanu as "a superior quality level of financial and economic activity conducted by economic agents, which is assessed using several indicators, such as turnover, capital output, labor productivity, return on capital, gross profit, net profit, efficiency of using fixed assets and other indicators." [5]

The company's performance occurs "based on production of goods and services whose value is higher than the value of consumed resources." [16]

We explain a diverse vision concerning the definition of performance through the stages that mark the evolution of performance concept, thus identifying four stages in the evolution of this concept [17]:

- between the 50's - 90's – when there is an homogenization on the definition of this concept and a variety of criteria for assessing the performance are used, such as: productivity, flexibility, adaptability, capacity, environment control, turnover, production costs and others;
- the end of the '80s and '90s - the performance is defined by the level of objective achievement;
- between 1995-2000, the performance is defined according to the efficiency and effectiveness of the company;
- between 2000 to date, the performance is defined based on value creation.

For the company, performance "occurs simply by the good outcomes, obtained as a result of activity. Undoubtedly, the best performance is obtained when profit is made, position on the

competitive market is maintained, and the company's wealth has an upward trend both in real form and on the stock exchange". [2]

"The precondition for the increase in the level of performance of a company is its management based on repeating measuring. The measuring itself must stem from the identification of key factors that have impact on the performance of a company and the application of the optimal system of measurements, which reflects the mutual relationships between activities, the rate of successfulness of their execution and their impact on the overall performance". [10]

An increase in profitability rates, in dynamics, reflects "an increase in business profitability and, this way, the conditions for an increase in activity profitability and future growth of the company's value are provided." [1]

Compared to profitability, return is "one of the most synthetic forms of expressing the efficiency of the entire economic and financial activity of the company, respectively, all means of production and labor used in all studies of the economic circuit: supply, production and sale." [3]

Colasse defines return "based on company's capacity which is considered an investment, to achieve a result that is measured by the ratio of this result and the investment they are undertaking." [8]

"Profitability measuring is given by an explanatory, efficiency rate system, defined as the ratio between the economic and financial effects and the efforts to obtain them." [23]

Buglea considers that the construction of return rates, "different forms of profit expression indicators are reported to indicators expressing the effort made by society." [6]

Return rates emphasize "economic and financial characteristics of the companies, allowing the comparison of their industrial and commercial performance." [3]

To determine the performance rates a number of 64 companies were studied, according to the Top 100 of market capitalization issuers, listed on Bucharest Stock Exchange, Class I and II.

3.1. Financial return analysis

Rates of financial return "measure return on equity, i.e. financial investment that shareholders have made by buying the enterprise's shares" [22]. Financial return "remunerates the owners of the company reserves, in fact, it represents an increase in owners' property, by their incorporation into capital, and hence an increase in value of the action taken." [23]

Financial return is "the ability of the company to develop net profit by equity engaged in its activity." [3]

Depending on the indicators used to the report number, the financial return of a company can be expressed as follows [13]:

A. Return on Common Equity (ROE)

"Return on Common Equity" it is the name ROE stands for and it reflects "the efficiency of using the capital of the contributed shares or of net profit at the enterprise's disposal for self-financing and company's equity." [20]

$$ROE = \frac{\text{Net Income}}{\text{Shareholder Equity}} \times 100$$

B. Pretax rate of financial return ($R_{f\text{pretax}}$)

When reporting the current result, before tax, and equity, pre-tax rate of financial return is obtained. To note is that the current result before tax is the gross result for the year, before tax, and equity does not include retained profit.

$$R_{f\text{pretax}} = \frac{\text{Current result before tax}}{\text{Equity}} \times 100$$

Financial return "remunerates shareholders, either by giving them dividends, or either as reserve increase, representing an increase in owners' property, by their incorporation into capital and therefore increasing the intrinsic share value." [18]

Further, in accordance with Annex 1 - "Determination of rates of financial return" for 64 companies listed on the Bucharest Stock Exchange, the rates of financial return were calculated. For example, the rate of return on equity was determined for S.C. Transilvania Construcții S.A. (COTR) as follows: $(1.085.936 / 129.964.290) \times 100 = 0,84 \%$. Pretax return on equity for the company Siretul Pascani S.A. (SRT) is equal to $(-823.285 / 13.152.686) \times 100 = -6,26 \%$. Both companies taken as example have values below the normal limit existing in the industry, i.e. 15%. Of all companies covered by the current study, approximately 12 companies have values close to the normal value and the nearest is owned by SC TMK - ARTROM (ART) which recorded a value of 15.74%. The possible differences in calculation come from the accomplished approximations. [12]

3.2. Economic return analysis

The economic rates of return "measure the efficiency of material and financial resources allocated to all activities of the company. Profitability is analyzed on the capital employed by the enterprise in the financial year to increase the owners' property and to pay the capital providers. Economic return is an important indicator in assessing the company's performance in the evaluation of invested capital exploitation, being the source of payment for such placed resources". [3]

A. Return on Total Assets (ROA)

ROA stands for "Return on Total Assets" and "is the most popular method within the rates of economic return and measures the profitability of the entire capital invested in the entity. This ratio measures the return on capital invested in business assets, being calculated as the ratio between the result obtained on various levels and its total assets or components. It is independent of the indebtedness, fiscal policy of income tax and extraordinary items. Excluding financial and extraordinary items, the economic rate of return favors comparisons between companies of the same sector." [1]

$$ROA = \frac{\text{Net result for the year}}{\text{Economic assets}} \times 100$$

B. Economic rate of return on assets (Rea)

If the economic result expresses the operation result before interest expense and income tax, economic rate of return becomes an economic rate of return on assets.

$$Rea = \frac{\text{Operating result}}{\text{Economic assets}} \times 100$$

where: Economic assets = Fixed assets + Working capital Needs + Cash

Working capital Needs = (Inventories + Receivables) – payables

Payables are equal to debts to be paid in less than one year or short-term liabilities taken from the balance sheet.

C. Return on gross economic assets (Rgea)

If the economic result is an operating surplus, the ratio expresses the return on gross economic assets.

$$Rgea = \frac{\text{Gross operating surplus}}{\text{Economic assets}} \times 100$$

In real terms, the economic rate of return "has two dimensions: one to pay the invested capital at least the minimum rate of return of the national economy and the other to pay the economic and financial risk taken by owners of the capital at the enterprise's disposal". [18]

According to Annex no. 2 - "Determination of economic rates of return", the economic rates of return were determined for 64 companies listed on the Bucharest Stock Exchange. Return on assets for company Amonil S.A. (AMO) was determined as follows: $(-22.741.061 / 67.120.854) \times 100 = -33,88\%$. In order to calculate the economic rate of return on assets, it is necessary to calculate in advance the economic asset for which the working capital needs should be determined. For company S.N.T.G.N. Transgaz S.A. (TGN) working capital needs is equal to $(43.247.769 + 366.868.985) - 358.127.194 = 51.989.560$ lei. By working capital needs, economic assets were determined as follows: $3.402.786.965 + 51.989.560 + 19.154.501 = 3.473.931.026$ lei. Thus, all the necessary data being calculated, rate of return on net assets for the proposed example is equal to $(442.570.859 / 3.473.931.026) = 12,74\%$. For S.C. Compa S. A. (CMP), the return on gross economic assets was determined as follows: $(62.898.804 / 393.334.041) \times 100 = 15,99\%$. In industry, the normal value for this type of rate is 9%, and according to Annex. 2, a total of about 32 companies have a value close to the normal value. [12]

3.3. Return on sales analysis

The rates of return on sales consider "return of different stages of business activity in the formation of the result, being determined as the ratio between accumulation margins and turnover or value added." [17]

A. Return on sales margin (Rsm)

This rate is used mainly by business enterprises and highlights the commercial strategy adopted by them. The analysis of this rate shows the efficiency of trade policy in general and pricing policy in particular.

$$Rsm = \frac{\text{Sales margin}}{\text{Sales of goods}} \times 100$$

where: Sales margin = Sales of goods – Cost of goods

B. Return on gross operating margin (Rgom)

If we want to measure the level of gross operating result, independently of financial policy, investment policy, the incidence of taxation and exceptional items, we appeal to gross operating margin rate.

$$Rgom = \frac{\text{Gross operating surplus}}{\text{Turnover}} \times 100$$

where: Gross operating surplus = Value added - (Staff expenses + Other taxes, fees and similar payments)

C. Return on net margin (Rnm)

A rate expressing the overall efficiency of the company, namely its ability to make a profit and to face competition, is the rate of net margin.

$$Rnm = \frac{\text{Net result for the year}}{\text{Turnover}} \times 100$$

D. Return on net operating margin (Rnom)

Operating efficiency in all its aspects is highlighted by net operating margin rate or rate of return on exploitation. The result of the operation has the advantage of being influenced by depreciation and adjustments, becoming a net operating result.

$$Rnom = \frac{\text{Operating result}}{\text{Turnover}} \times 100$$

Based on the formulas presented, rates of return on sales were determined for the companies studied and presented in Annex 3 "Determination of rates of return on sales". Return on sales margin, for S.C. Mj Maillis România S.A. (MJM), taken as an example, involved first determining the sales margin: 35.207.278 - 32.595.061 = 2.612.217 lei. Once the necessary data are obtained, sales margin rate of return is equal to $(2.612.217 / 35.207.278) \times 100 = 7,42\%$. Gross operating margin rate of return for the company Retrasib S.A. (RTRA) was calculated using gross operating surplus equal to 10.504.884 - (6.034.384 + 243.219) = 4.227.281 lei. After determining the gross operating surplus, gross operating margin rate of return is $(4.227.281 / 41.308.854) \times 100 = 10, 23\%$. For company Dafora S.A. (DAFR), the net margin rate of return is equal to $(2.008.175 / 161.599.658) \times 100 = 1,24 \%$, and

for S.C. UAMT S.A. (UAM), the net operating margin rate of return was calculated as follows: $(3.406.949 / 84.091.931) \times 100 = 4,05\%$. This category of rates in industry is around 5%, while in the present study, about 12 companies fall within the normal range. [12]

4. Company Ranking Based on the DuPont Model

The DuPont Formula, also known as the strategic profit model, is a common way to decompose the financial return in three important components. Essentially, ROE will be equal with the profit margin multiplied with the asset speed of rotation and equity multiplier. [26]

$$ROE = ROS \times TAT \times EM$$

The DuPont formula tells us that ROE is affected by three things [24]:

- operating efficiency, which is measured by profit margins;
- efficiency in the use of assets, which is measured by the turnover of the total assets;
- financial leverage, which is measured by the equity multiplier.

As can be seen, the DuPont formula can be decomposed into several formulas, indicators that can show us the influence of each of them. Thus [24]:

- Return Trade (ROS) reflects the share of net profit in the turnover. It also indicates what percentage of turnover is represented by net profit.

$$ROS = \frac{\text{Net result for the year}}{\text{Turnover}}$$

- The assets speed of rotation (TAT) shows the number of rotations of the assets in a cycle of exploitation.

$$TAT = \frac{\text{Turnover}}{\text{Total assets}}$$

- Financial Leverage or the general borrowing rate is the ratio between total debt and equity, reflecting financial managers the ability to attract external resources to boost the efficiency of equity. Financial leverage expresses the influence that indebtedness (attracted financing sources, mainly bank loans) has on return on equity of the company (own financial sources such as social capital, reserves, depreciation, net profit remained available to the firm). Leverage measures the company's ability to invest loaned capital at a higher rate to the interest rate. At first

glance, indebtedness adversely affects profitability as allotted interests increase costs and decrease profits. In reality, if the rate of return is higher than the interest rate, borrowing has a positive influence on profitability and on the company's increasing wealth.

$$EM = \frac{\text{Total assets}}{\text{Equity}}$$

The Pearson Correlation is a statistical technique that measures and describes the degree of linear association between two quantitative continuous variables, normally distributed. [25]

For data analysis, we used the Pearson's correlation coefficient. This coefficient is a statistical model of the correlation calculation to establish the intensity of relationship between the same two variables within the data distribution. The Pearson correlation report has the following mathematical formula [15]:

$$r = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x - \bar{x})^2 \sum(y - \bar{y})^2}}$$

where: r = The Pearson correlation report

\bar{x} and \bar{y} = the indicators' average value on the same distribution range

Coefficient "r" takes values between -1 and +1 indicating the power (we interpret the coefficient value) and the direction (we interpret the sign of the coefficient) of the linear association. The absolute value indicates the power of association [24]:

- "+" sign means that "r" is directly in proportion to the direction of the joint;

- sign "-" indicates that Pearson's correlation coefficient is inversely proportional to the joint direction. In general, $r > 0,4$ is a good correlation. The Pearson's correlation is used for values that are normally distributed (uniform) for the non-uniform using the Spearman correlation coefficient (rs), so the Pearson's correlation coefficient is independent of the measure unit and can only be used for normally distributed values. [24]

- $r \in [0; 0,2]$ – very weak correlation
- $r \in [0,2; 0,4]$ – weak correlation
- $r \in [0,4; 0,6]$ – reasonable correlation
- $r \in [0,6; 0,8]$ – high correlation
- $r \in [0,8; 1]$ – very high correlation

For the 64 company ranking, there was calculated, in addition to the financial return, the return on sales, the rotational speed and the leverage. These rates, determined according to the formulas presented above are exposed to all companies in Annex 4 "Rate ranking based on the DuPont model". Thus, for example, the return on

sales for the company CONTED S.A. Dorohoi (CNTE) was determined as follows: $2.285.540 / 18.644.924 = 0,12$ and Tourism Felix S.A. Băile Felix (TUFE), the ROS indicator is equal to $6.738.894 / 48.437.997 = 0,14$. Another example is Stirom SA Bucharest (STIB), where the rotation speed was calculated as follows: $207.570.716 / 380.864.669 = 0,54$. The same was done for the company Impact Developed & Contractor S.A. (IMP) where: $13.540.400 / 408.352.467 = 0,03$. The last indicator, non-determined until this paragraph is the leverage which in the case of the company Amonil S.A. (AMO) was determined as follows: $89.426.766 / 65.085.786 = 1,37$ or for the company Energopetrol S.A. Company (ENP): $31.722.305 / 9.936.674 = 3,19$. Thus, the final of Annex 4 shows that the companies were arranged in the order of increasing rate of financial return, the highest value being held by the Arad Contor Group S.A. (CGC), with a result of 10,72; and Armatura S.A. (ARM) has the value -12,01 representing the lowest value among the analyzed companies. The highest value of commercial profitability among the analyzed companies is 0,28 for the company S.N.T.G.N. Transgaz (TGN), for the rotation speed Petrolexportimport SA (PEI) has the highest value of 7,57; and the leverage with the greatest results, that of 161,69 is owned by Armatura S.A. The financial rate of return in addition to the formula set forth in the previous paragraph can be determined by multiplying commercial profitability, leverage and the rotational speed. For example, for Electrocontact Industrial Group SA (ECT), the financial profitability was calculated as follows: $-0,09 \times 0,46 \times 1,26 = -0,05$. For the results to be expressed in percentages, we multiply the result by 100, so Rompetrol SA (RRC): $5,31 \times 100 = 531$. Values equal to 0 do not have any influence, being neutral.

By applying the Pearson correlation coefficient according to the formula above, we obtain the following results: "r" calculated between total assets and the net result for the year, the coefficient is equal to 0,91, so there is a very high correlation between the two variables because "r" is in this case between [0,8; 1]. The correlation between the net result for the year and turnover is equal to 0,72; therefore, we have a high correlation, the Pearson correlation coefficient falling between [0,6; 0,8], and the correlation coefficient between the net result for the year and equity has a value of 0,98; therefore also a very high correlation, the correlation value being close to the first. According to all three calculated correlations, it appears that at

the analyzed company level the correlation is very high.

The correlation coefficient value, calculated in the three cases shows a positive trend for our sample, as it indicates a strong direct link between the company size and the outcome, or between equity financing and the result. Therefore, for investors, this will be an element of stability and confidence.

Considering that some indicators established names in English, in some cases abbreviations were used in their native language.

5. Conclusions

After the specifications made, Profit and loss account are part of the financial statements, with the balance sheet, information data, the statement of fixed assets, the situation of fixed assets depreciation, the situation of adjustments for depreciation. Profit and loss account shows the performance of an entity, because it presents income and financial, operating and extraordinary expenses.

Of the many definitions of the concepts of profitability and efficiency, we conclude that the approaches in terms of performance evaluation are more general, the concept of profitability having a wider scope, so that profitability indicators, to some extent, are absorbed. It results that a company, in order to be profitable, should operate under profit, i.e. revenues should exceed costs involved in performing the activity.

We appreciate that the rates of return shown are used with a clearly defined role and that is to highlight the efficiency of the utilization of investments conducted in the entity's activity. Of the total rates calculated for the 64 companies listed on the Bucharest Stock Exchange, the normal range for the rates of return on equity are complied in a proportion of 18,75%, economic rates of return of 50%, and the rates of return, the same as in the first category, of 18,75%.

Based on this survey, we conclude that the majority of companies covered by the current study, do not fall within the normal limits, being under 50% for the financial and commercial rates of return and equal to 50% for the rates of economic return.

As a proposal, it has been observed in order to reduce the decline in shares, we should try correlating inventories, stock exchange international development, lack of investment in the Romanian market and other factors proposed by various companies facing such situations.

In the attempt to study the factors influencing the performance, the last part of the paper made the ranking of analyzed companies possible using the DuPont model. According to the model, the rate of financial return, is influenced by a number of factors that can be highlighted by its decomposition by other rates of return, ROS, ROA, EM or TAT. The effectuated calculations for this model are presented in the last appendix, where companies were prioritized according to the rate of financial return, in an ascending order of the results.

Pearson's correlation coefficient, as a statistical tool for the evaluation of the intensity of the relationship between the DuPont model factors expresses, in the case of our sample, a positive situation. Thus, an increase in profitability can be expressed in most cases either by increasing the size of the company, represented by the indicator Total Assets, or by increasing the indicator Equity. A possible increase can be expressed also by the increase of Turnover, but only 52% of the cases (the coefficient of determination $r^2 = 0,71^2 = 0,52$).

As a proposal to practitioners, the means shown by us to study the performance can be taken by technical analyses that are performed in the case of stock portfolios. Thus calculating the factors influencing their performance and their intensity on financial profitability, it can be assessed empirically if there is or not a significant bond between the company size, the mode of financing and results. If there is, we may consider the investment decision timely in that portfolio.

References:

- [1] Achim, M.V.; Borlea, S.N. (2012) *Financial analysis of the economic entity*, Risoprint Publishing House, Cluj-Napoca, p. 294 - 299.
- [2] Ana, G. (2001) *Finance and financial policies of the company*, Economic Publishing House, Bucharest, p. 311 - 314.
- [3] Bărbuță-Mișu, N. (2009) *Companie's Finance*, Didactic and Pedagogic Publishing House, Bucharest, p. 95 - 119.
- [4] Bătrâncea L.M., Bătrâncea Maria (2004) *Financial analysis of the company*, Risoprint Publishing House, Cluj-Napoca, p. 187.
- [5] Bistriceanu, G. (2001) *Encyclopedia of banking and finance*,

- insurance, Volume III, Economic Publishing House, Bucharest, p. 31.*
- [6] Buglea, A. (2011) *Economic and financial analysis*, Mirton Publishing House, Timișoara, p. 139.
- [7] Chyan-Long, J.; Kuang-Wen, C.; Yi-Min, L.; Yungchih, G. W. (2013) *Evaluating Firm Performance with Balanced Scorecard and Data Envelopment Analysis*, Issue 1, Volum 10, WSEAS Transactions on Business and Economics.
- [8] Colasse, B. (1993) *Le gestion financière de l'entreprise*, PUF, Paris, p. 54.
- [9] Drahomíra, P.; Petr D. (2013) *Measuring a Company's Performance: The Identification of the Correlation between EVA and Selected Financial Indicators with the Use of Genetic Algorithm*, Issue 1, Volum 10, WSEAS Transactions on Business and Economics.
- [10] Cotleț, D.; Domil, A.; Dumitrescu, A.; Mateș, Do.; Mateș, Du; Pereș, C.; Șteț, M. (2006) *Financial accounts of economic entities*, Mirton Publishing House, Timișoara, pp. 542 - 543.
- [11] Hada, T. (2010) *Financial management of the company*, Second Edition updated and supplemented, Aeternitas Publishing House, pp. 242 - 244.
- [12] Hada, T.; Avram, T. M. (2014) *Profit and loss account, information source to determine performance rates for companies listed on the Bucharest Stock Exchange*, Advances in Economics, Law and Political Sciences, Proceedings of the 3rd International Conference on Finance, Accounting and Auditing, Brașov, WSEAS Business and Economics Series, Volum 15, pp. 201-212.
- [13] Jianu, I. (2007) *Assessment, presentation and analysis of enterprise performance*, CECCAR Publishing house, Bucharest, p. 12 - 24.
- [14] Mateș, D.; Pereș, I.; Pereș, C. (2005) *Fundamentals of Accounting*, Mirton Publishing House, Timișoara, p.83.
- [15] Mărginean, R.; Mihălțan, D. C.; Țepeș, B. A. (2014) *Performance Analysis in the Construction Industry by the DuPont Model-Case Study*, Advances in Economics, Law and Political Sciences, Proceedings of the 3rd International Conference on Finance, Accounting and Auditing, Brașov, WSEAS Business and Economics Series, Volum 15, pp. 24-31.
- [16] Pigé, B.; Pager, X. (2005) *Reporting financier et gouvernance des entreprises: le sens des norms IFRS*, Edition EMS, Paris, p. 28.
- [17] Pinteau, O.M. (2011) *Performance of economic entities in the context of sustainable development*, Risoprint Publishing House, Cluj-Napoca, p. 24.
- [18] Popa, A. F. (2011) *Accounting and taxation of enterprise's outcome* CECCAR Publishing House, Bucharest, p. 309 - 317.
- [19] Rădulea, C. (2010) *Psychological Statistics and Computerized Data*, University Course, <http://www.scribd.com/doc/42372943/Stati-stica-Psihologica>, accessed on 28.06.2014.
- [20] Robu, V.; Georgescu, N. *Economic and financial analysis*, Digital library A.S.E., cap. 4, p. 20.
- [21] Bucharest Stock Exchange website, www.bvb.ro
- [22] Stancu, I. (2002) *Finance*, E Third Edition, Economic Publishing House, Bucharest, p. 848 - 854.
- [23] Vintilă, G. (2004) *Financial management of the company*, Didactic and Pedagogic Publishing House, Bucharest, p. 196.
- [24] <http://easyspps.wordpress.com/2010/08/30/coeficientul-de-corelatie-al-lui-pearson-r-11/>, accessed on 29.06.2014.
- [25] <http://sorana.academicdirect.ro/pages/doc/MV2012/MVRom06.pdf>, accessed on 30.06.2014.
- [26] <http://www.goldring.ro/piramida-dupont.html>, accessed on 29.06.2014.

Annex 1: Determination of rates of financial return

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Company Name (Trading symbol)	Equity	Current result before tax	Net result for the year	Return on Equity	Pretax rate of financial return
ALR	1.553.478.084	280.181.996	228.309.982	14,35	18,04
ALT	108.817.664	500.082	378.405	0,00	0,46
ALU	67.317.750	4.741.715	3.683.071	5,52	7,04
AMO	65.085.786	-22.741.061	-22.741.061	-35,57	-34,94
APC	61.770.689	8.639.410	7.163.903	11,63	13,99
ARM	174.910	-2.099.932	-2.099.932	-1148,00	-1.200,58
ARS	102.543.403	17.049.140	11.618.296	10,88	16,63
ART	428.779.733	67.503.261	67.503.261	15,96	15,74
ARTE	78.885.933	5.487.998	4.349.174	5,03	6,96
ATB	287.058.407	26.397.659	20.298.909	6,92	9,20
BCM	41.188.707	972.594	792.059	1,97	2,36
BIO	153.957.996	16.919.762	14.220.788	9,18	10,99
BRM	23.061.192	1.915.904	2.255.143	10,03	8,31
CAOR	68.265.291	1.517.013	1.251.432	1,96	2,22
CBC	64.750.678	1.735.525	1.468.013	2,34	2,68
CEON	28.556.970	-7.891.411	-7.891.411	-28,35	-27,63
CGC	-6.250.349	-67.032.139	-67.032.139	1076,61	1.072,45
CMCM	262.717.089	1.419.994	1.139.891	0,46	0,54
CMF	31.673.038	1.907.460	923.006	4,47	6,02
CMP	292.562.890	23.233.881	17.369.837	6,49	7,94
CNTE	10.353.981	2.692.274	2.285.540	21,61	26,00
COMI	133.194.377	1.474.293	850.645	0,85	1,11
COS	-92.021.529	-133.495.504	-133.495.504	143,35	145,07
COTE	540.817.576	37.840.527	28.558.866	5,05	7,00
COTR	129.964.290	1.502.148	1.085.936	1,02	1,16
DAFR	157.590.102	2.008.175	2.008.175	1,03	1,27
ECT	11.698.064	-596.485	-596.485	-5,22	-5,10
EFO	232.964.488	266.377	172.844	0,12	0,11
ELGS	26.260.086	8.725.908	7.310.566	28,78	33,23
ELJ	25.631.133	-3.778.037	-3.778.037	-14,85	-14,74
ELMA	269.148.045	17.639.483	15.075.281	5,51	6,55
ENP	9.936.674	117.084	56.773	0,00	1,18
EPT	20.898.016	-48.063.969	-48.063.969	-228,42	-229,99
IMP	296.828.111	-22.261.046	-22.261.046	-6,79	-7,50
MECF	42.913.158	7.924.045	7.246.828	16,89	18,47

MEF	34.928.783	203.928	11.263	0,00	0,58
MJM	-8.607.446	-4.872.415	-4.872.415	58,32	56,61
OIL	345.226.806	1.890.032	545.419	0,00	0,55
OLT	-826.884.427	-278.342.623	-278.342.623	33,52	33,66
PEI	13.013.030	235.341	235.341	0,00	1,81
PPL	47.572.517	3.463.432	2.929.971	5,67	7,28
PREH	202.531.399	1.322.764	917.740	0,32	0,65
PTR	128.436.335	18.961.910	15.813.330	12,64	14,76
RMAH	39.835.319	5.399.960	4.077.449	10,23	13,56
ROCE	133.187.047	2.783.567	2.712.128	2,43	2,09
RPH	91.212.485	12.951.541	10.687.756	12,65	14,20
RRC	-134.091.000	-735.847.584	-735.847.584	531,11	548,77
RTRA	23.037.153	1.414.508	1.188.188	5,37	6,14
SCD	256.395.838	44.065.751	33.857.309	12,95	17,19
SNO	88.410.039	380.016	380.016	0,63	0,43
SNP	18.890.892.162	4.478.639.238	3.685.607.226	19,30	23,71
SOCP	99.800.086	8.586.345	7.092.137	7,06	8,60
SPCU	128.786.567	2.119.403	1.177.362	1,16	1,65
SRT	13.152.686	-823.285	-823.2	-629,03	-6,26
STIB	260.042.571	22.865.704	19.462.703	7,10	8,79
STZ	167.543.309	-1.330.486	-1.330.486	-0,77	-0,79
TBM	67.520.493	-19.411.417	-19.411.417	-29,11	-28,75
TEL	2.468.483.557	127.002.003	90.913.316	3,80	5,14
TGN	3.262.877.964	462.260.472	379.571.465	11,55	14,17
TRP	130.073.871	-14.642.198	-14.642.198	-11,21	-11,26
TUFE	173.052.703	8.001.769	6.738.894	3,92	4,62
UAM	46.546.752	770.056	542.995	1,81	1,65
VESY	18.597.132	-4.879.702	-4.879.702	-27,07	-26,24
VNC	88.234.850	2.351.727	1.997.353	1,86	2,67

Source: www.bvb.ro, Authors' processing

Annex 2: Determination of economic rate of return

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Company Name (Trading symbol)	Total assets	Operating result	Economic assets	Gross operating surplus	Working capital needs	Return on assets	Return on economic assets	Return on gross economic assets
ALR	2.428.474.516	368.408.008	2.153.406.155	476.448.876	402.257.370	10,60	17,11	22,13
ALT	176.219.694	4.394.743	118.817.511	9.444.495	1.296.123	0,32	3,70	7,95
ALU	83.213.766	3.815.574	67.241.669	7.650.502	26.581.744	5,48	5,67	11,38
AMO	89.426.766	-23.407.846	67.120.854	-952.256	10.426.379	-33,88	-34,87	-1,42
APC	80.863.942	8.775.309	62.594.577	12.361.196	17.640.310	11,44	14,02	19,75
ARM	28.280.824	-1.232.542	25.043.167	-605.592	10.167.930	-8,39	-4,92	-2,42
ARS	160.559.680	14.503.430	105.326.936	37.484.309	29.427.543	11,03	13,77	35,59
ART	901.458.946	89.823.532	734.168.143	124.198.379	251.155.151	9,19	12,23	16,92
ARTE	151.715.681	8.233.409	82.426.593	12.675.279	16.964.347	5,28	9,99	15,38
ATB	449.313.171	32.062.861	306.288.404	57.016.754	125.584.689	6,63	10,47	18,62
BCM	41.781.363	136.197	29.804.426	838.837	49.875	2,66	0,46	2,81
BIO	184.918.511	15.707.018	84.590.123	21.353.099	15.193.177	16,81	18,57	25,24
BRM	29.320.729	2.521.139	23.060.804	3.899.206	6.994.424	9,78	10,93	16,91
CAOR	90.741.231	834.125	81.848.334	1.180.991	-6.716.138	1,53	1,02	1,44
CBC	73.689.237	2.238.388	64.757.881	4.040.982	9.122.391	2,27	3,46	6,24
CEON	164.109.261	775.196	110.253.675	1.044.036	-44.198.162	-7,16	0,70	0,95
CGC	57.463.997	-61.787.180	-6.174.503	-9.698.083	-50.906.964	1.085,63	1.000,68	157,07
CMM	276.653.788	1.406.576	269.493.785	4.510.229	4.147.411	0,42	0,52	1,67
CMF	83.427.743	4.656.981	33.212.277	9.797.244	-54.695	2,78	14,02	29,50
CMP	493.965.989	27.158.629	393.334.041	62.898.804	60.664.620	4,42	6,90	15,99
CNTE	11.784.618	2.543.951	10.358.555	3.088.950	2.458.990	22,06	24,56	29,82
COMI	188.987.421	539.204	146.441.852	8.778.021	26.317.802	0,58	0,37	5,99
COS	499.900.018	-117.182.073	-94.697.686	-134.550.301	-339.241.526	140,97	123,74	142,08
COTE	630.665.072	26.763.130	362.235.888	107.124.495	-19.258.270	7,88	7,39	29,57
COTR	182.656.543	1.957.900	162.226.576	8.722.365	12.332.086	0,67	1,21	5,38
DAFR	438.727.700	14.373.944	324.574.643	32.310.285	20.405.060	0,62	4,43	9,95
ECT	14.777.197	-624.283	11.718.084	-319.949	3.968.864	-5,09	-5,33	-2,73
EFO	251.691.068	649.181	235.310.515	6.090.048	-2.820.357	0,07	0,28	2,59
ELGS	46.396.208	8.996.684	17.527.299	10.674.166	5.107.305	41,71	51,33	60,90
ELJ	29.639.064	-1.296.420	26.707.850	-2.829.265	13.031.631	-14,15	-4,85	-10,59
ELMA	323.373.668	16.420.386	275.618.898	24.755.257	29.820.821	5,47	5,96	8,98
ENP	31.722.305	1.385.721	13.839.799	1.774.716	8.255.746	0,41	10,01	12,82
EPT	432.419.499	-27.105.019	305.176.728	-11.008.455	-4.436.618	-15,75	-8,88	-3,61

IMP	408.352.467	-16.608.101	367.568.966	-9.784.550	267.842.775	-6,06	-4,52	-2,66
MECF	48.492.503	8.365.602	42.801.072	9.057.587	7.592.600	16,93	19,55	21,16
MEF	40.665.360	187.971	37.105.569	1.046.440	15.233.980	0,03	0,51	2,82
MJM	33.830.932	-4.051.537	-8.500.310	-3.036.074	-32.388.078	57,32	47,66	35,72
OIL	378.359.615	1.835.912	353.986.161	15.736.021	-8.962.029	0,15	0,52	4,45
OLT	2.198.423.759	-158.895.924	641.627.786	-9.243.555	-1.237.813.021	-43,38	-24,76	-1,44
PEI	68.847.745	2.633.974	41.919.720	2.290.208	29.441.740	0,56	6,28	5,46
PPL	50.362.569	1.109.843	23.333.015	1.009.434	13.013.695	12,56	4,76	4,33
PREH	262.126.063	3.143.303	228.237.614	8.894.010	15.346.051	0,40	1,38	3,90
PTR	143.029.244	15.595.526	131.204.129	24.861.980	54.154.226	12,05	11,89	18,95
RMAH	162.942.722	5.568.914	42.308.550	9.914.978	-9.077.322	9,64	13,16	23,43
ROCE	234.855.956	5.683.105	165.970.052	8.912.309	-37.970.812	1,63	3,42	5,37
RPH	388.347.032	12.896.086	95.566.562	21.005.578	140.855	11,18	13,49	21,98
RRC	6.563.566.885	-274.099.425	-55.962.251	-25.375.121	-4.399.788.784	1.314,90	489,79	45,34
RTRA	47.863.063	3.029.782	24.440.152	4.227.281	2.373.879	4,86	12,40	17,30
SCD	347.755.737	38.020.442	268.980.488	41.492.471	172.929.767	12,59	14,14	15,43
SNO	96.507.307	155.507	74.267.853	5.063.735	31.006.397	0,51	0,21	6,82
SNP	33.819.553.700	5.033.585.274	29.026.337.728	7.240.162.441	-109.026.382	12,70	17,34	24,94
SOCF	106.795.772	6.776.617	66.964.841	11.601.305	7.839.926	10,59	10,12	17,32
SPCU	158.590.729	2.488.227	137.706.210	9.110.997	8.230.563	0,85	1,81	6,62
SRT	31.241.446	-467.884	17.422.745	-247.137	2.381.873	-0,05	-2,69	-1,42
STIB	380.864.669	26.303.030	255.355.129	41.063.572	25.033.944	7,62	10,30	16,08
STZ	179.125.518	-1.479.491	171.640.323	-786.249	-10.317	-0,78	-0,86	-0,46
TBM	161.531.440	-12.455.884	94.950.427	-5.511.227	-27.648.391	-20,44	-13,12	-5,80
TEL	5.215.805.828	159.473.510	3.697.836.119	487.483.363	-148.832.932	2,46	4,31	13,18
TGN	4.089.037.220	442.570.859	3.473.931.026	573.743.113	51.989.560	10,93	12,74	16,52
TRP	236.656.907	-11.234.148	169.465.979	11.131.233	10.164.590	-8,64	-6,63	6,57
TUFE	194.142.239	9.111.498	190.333.192	13.711.338	-1.195.922	3,54	4,79	7,20
UAM	96.850.931	3.406.949	53.993.881	8.110.864	1.549.842	1,01	6,31	15,02
VESY	43.362.218	-3.914.487	18.777.025	966.084	-2.643.145	-25,99	-20,85	5,15
VNC	224.686.235	5.908.103	160.342.449	13.219.663	-1.972.348	1,25	3,68	8,24

Source: www.bvb.ro, Author's processing

Annex 3: Determination of rates of return on sales

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Company Name (Trading symbol)	Turnover	Sales margin	Sales of goods	Sales margin rate	Gross operating margin rate	Operating margin rate	Net operating margin rate
ALR	2.241.390.928	102.147	436.494	23,40	21,26	10,19	16,44
ALT	133.908.870	3.131	38.445	8,14	7,05	0,28	3,28
ALU	74.007.746	10.258.310	39.174.046	26,19	10,34	4,98	5,16
AMO	9.627.605	1.961	2.071.563	0,09	-9,89	-236,21	-243,13
APC	90.153.992	1.797.458	12.895.843	13,94	13,71	7,95	9,73
ARM	20.075.758	244.528	2.213.738	11,05	-3,02	-10,46	-6,14
ARS	158.402.223	366.874	2.114.298	17,35	23,66	7,33	9,16
ART	856.313.578	275.264	6.081.523	4,53	14,50	7,88	10,49
ARTE	198.265.652	604.805	8.042.985	7,52	6,39	2,19	4,15
ATB	281.847.455	35.033.377	61.912.253	56,59	20,23	7,20	11,38
BCM	5.379.360	1.405.218	2.436.667	57,67	15,59	14,72	2,53
BIO	93.443.090	1.301.214	2.997.906	43,40	22,85	15,22	16,81
BRM	23.098.100	0	0	0	16,88	9,76	10,91
CAOR	6.056.335	975.643	3.097.578	31,50	19,50	20,66	13,77
CBC	30.321.507	453.971	1.694.818	26,79	13,33	4,84	7,38
CEON	27.370.101	-4.168	195.297	-2,13	3,81	-28,83	2,83
CGC	18.857.699	442.904	1.027.302	43,11	-51,43	-355,46	-327,65
CMCM	29.374.755	418.921	1.149.862	36,43	15,35	3,88	4,79
CMF	142.154.245	18.521	967.520	1,91	6,89	0,65	3,28
CMP	475.420.370	321.030	2.655.082	12,09	13,23	3,65	5,71
CNTE	18.644.924	3.854	68.030	5,67	16,57	12,26	13,64
COFI	85.079.877	2.105.032	6.767.916	31,10	-20,73	-61,01	-47,72
COMI	113.716.459	321.445	1.824.620	17,62	7,72	0,75	0,47
COS	1.099.750.708	9.823.085	26.398.068	37,21	-12,23	-12,14	-10,66
COTE	341.768.185	589.005	737.718	79,84	31,34	8,36	7,83
COTR	43.255.975	60.408	311.012	19,42	20,16	2,51	4,53
DAFR	161.599.658	823.641	2.521.084	32,67	19,99	1,24	8,89
ECT	6.817.985	32.025	1.015.273	3,15	-4,69	-8,75	-9,16
EFO	26.430.368	6.586.460	9.577.646	68,77	23,04	0,65	2,46
ELGS	125.615.939	16.467	643.204	2,56	8,50	5,82	7,16
ELJ	18.891.831	188.200	4.175.115	4,51	-14,98	-20,00	-6,86
ELMA	495.195.622	24.518.415	428.296.769	5,72	5,00	3,04	3,32
ENP	17.837.293	8.797	1.888.061	0,47	9,95	0,32	7,77
EPT	199.082.319	136.634	319.300	42,79	-5,53	-24,14	-13,61

IMP	13.540.400	25.715	109.309	23,53	-72,26	-164,40	-122,66
MECF	31.578.535	1.337.932	1.909.293	70,07	28,68	22,95	26,49
MEF	17.664.283	2.282.009	5.095.418	44,79	5,92	0,06	1,06
MJM	35.742.014	2.612.217	35.207.278	7,42	-8,49	-13,63	-11,34
OIL	115.773.802	0	0	0	13,59	0,47	1,59
OLT	1.533.016.194	18.351.531	64.467.770	28,47	-0,60	-18,16	-10,36
PEI	521.232.193	4.541.527	521.060.858	0,87	0,44	0,05	0,51
PPL	53.828.304	159.997	1.172.633	13,64	1,88	5,44	2,06
PREH	64.764.491	-22.230	73.558	-30,22	13,73	1,42	4,85
PTR	95.488.935	2.175.340	14.669.027	14,83	26,04	16,56	16,33
RMAH	203.467.822	36.270.157	204.809.363	17,71	4,87	2,00	2,74
ROCE	107.017.783	1.471.109	21.356.778	6,89	8,33	2,53	5,31
RPH	385.169.835	71.674.858	385.801.692	18,58	5,45	2,77	3,35
RRC	10.174.808.952	4.352.635	10.073.931	43,21	-0,25	-7,23	-2,69
RTRA	41.308.854	2.612.217	35.207.278	10,48	10,23	2,88	7,33
SCD	235.648.166	5.177.931	29.358.343	17,64	17,61	14,37	16,13
SNO	55.795.808	25.619	57.151	44,83	9,08	0,68	0,28
SNP	16.565.465.973	0	2.726.308.898	0	43,71	22,25	30,39
SOCP	59.103.455	-18.415	1.613	-1.141,66	19,63	12,00	11,47
SPCU	148.719.552	-1.319	37.225.068	0,00	6,13	0,79	1,67
SRT	9.338.719	9.117	328.859	2,77	-2,65	-0,14	-5,01
STIB	207.570.716	9.886.042	60.959.044	16,22	19,78	9,38	12,67
STZ	14.232.173	18.764	106.634	17,60	-5,52	-9,35	-10,40
TBM	46.491.763	788.688	811.605	97,18	-11,85	-41,75	-26,79
TEL	3.113.142.778	731.297	4.183.103	17,48	15,66	2,92	5,12
TGN	1.343.321.806	0	0	0	42,71	28,26	32,95
TRP	209.359.979	7.974.882	38.314.814	20,81	5,32	-6,99	-5,37
TUFE	48.437.997	10.404.583	16.464.387	63,19	28,31	13,91	18,81
UAM	84.091.931	184.718	804.854	22,95	9,65	0,65	4,05
VESY	35.986.329	-1.817	570.497	-0,32	2,68	-13,56	-10,88
VNC	163.751.672	1.074.570	4.917.027	21,85	8,07	1,22	3,61

Source: www.bvb.ro, Authors' processing

Annex no. 4: Rates hierarchy based on the DuPont model

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Company name (transactional symbol)	ROS	TAT	EqM	ROE
CGC	-3,55	0,33	-9,19	10,77
RRC	-0,07	1,55	-48,95	5,31
COS	-0,12	2,2	-5,43	1,43
MJM	-0,14	1,06	-3,93	0,58
OLT	-0,18	0,7	-2,66	0,34
ELGS	0,06	2,71	1,77	0,29
CNTE	0,12	1,58	1,14	0,22
SNP	0,22	0,49	1,79	0,19
MECF	0,23	0,65	1,13	0,17
ART	0,08	0,95	2,1	0,16
ALR	0,1	0,92	1,56	0,14
SCD	0,14	0,68	1,36	0,13
RPH	0,03	0,99	4,26	0,13
PTR	0,17	0,67	1,11	0,13
APC	0,08	1,11	1,31	0,12
TGN	0,28	0,33	1,25	0,12
ARS	0,07	0,99	1,57	0,11
RMAH	0,02	1,25	4,09	0,10
BRM	0,1	0,79	1,27	0,10
BIO	0,15	0,51	1,2	0,09
STIB	0,09	0,54	1,46	0,07
SOCF	0,12	0,55	1,07	0,07
ATB	0,07	0,63	1,57	0,07
CMP	0,04	0,96	1,69	0,06
PPL	0,05	1,07	1,06	0,06
ALU	0,05	0,89	1,24	0,06
ELMA	0,03	1,53	1,2	0,06
RTRA	0,03	0,86	2,08	0,05
COTE	0,08	0,54	1,17	0,05
ARTE	0,02	1,31	1,92	0,05
CMF	0,01	1,7	2,63	0,04
TUFE	0,14	0,25	1,12	0,04
TEL	0,03	0,6	2,11	0,04
ROCE	0,03	0,46	1,76	0,02
CBC	0,05	0,41	1,14	0,02
BCM	0,15	0,13	1,01	0,02

CAOR	0,21	0,07	1,33	0,02
VNC	0,01	0,73	2,55	0,02
UAM	0,01	0,87	2,08	0,02
SPCU	0,01	0,94	1,23	0,01
DAFR	0,01	0,37	2,78	0,01
COTR	0,03	0,24	1,41	0,01
COMI	0,01	0,6	1,42	0,01
SNO	0,01	0,58	1,09	0,01
CMCM	0,04	0,11	1,05	0,005
PREH	0,01	0,25	1,29	0,003
EFO	0,01	0,11	1,08	0,001
ALT	0	0,76	1,62	0
ENP	0	0,56	3,19	0
MEF	0	0,43	1,16	0
OIL	0	0,31	1,1	0
PEI	0	7,57	5,29	0
STZ	-0,09	0,08	1,07	-0,01
ECT	-0,09	0,46	1,26	-0,05
IMP	-1,64	0,03	1,38	-0,07
TRP	-0,07	0,88	1,82	-0,11
ELJ	-0,2	0,64	1,16	-0,15
VESY	-0,14	0,83	2,33	-0,27
CEON	-0,29	0,17	5,75	-0,28
TBM	-0,42	0,29	2,39	-0,29
AMO	-2,36	0,11	1,37	-0,36
EPT	-0,24	0,46	20,69	-2,28
SRT	-8,81	0,3	2,38	-6,29
ARM	-0,1	0,71	161,69	-11,48
Pearson correlation coefficient	Correlation between the net income of the year and total assets			0,91
	Correlation between the net income of the year and turnover			0,72
	Correlation between the net income of the year and equity			0,98

Source: Authors' processing